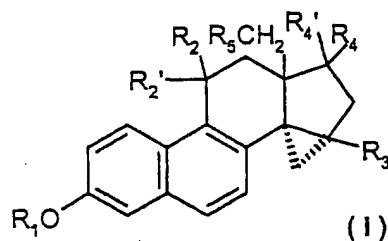


In the Claims:

Please cancel claims 1 to 9 without prejudice and add the following claims 10 to 21:

10. An equilenin derivative of formula I:



wherein

R_1 denotes a hydrogen atom, a C_1 - C_5 -alkyl group, a C_1 - C_5 -acyl group or a benzoyl group,

R_2 denotes a hydrogen atom and R'_2 denotes a fluorine atom, a hydroxyl group or a C_1 - C_5 -acyloxy group or R_2 and R'_2 together denote an oxo group,

R_3 denotes a hydrogen atom or a methyl group,

R_4 denotes a hydrogen atom and R'_4 denotes a hydroxyl group or a C_1 - C_{11} -acyloxy group or R_4 and R'_4 together denote an oxo group, a

contd.
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methylene group, a halomethylene group or a dihalomethylene group
and

R₅ denotes a hydrogen atom or a methyl group.

11. The equilenin derivative as defined in claim 10, wherein said R₅ is
said hydrogen.

12. An equilenin derivative selected from the group consisting of

14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-3, 11 β ,17 β -triol,

11 β ,17 β -dihydroxy-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-
3-yl benzoate,

11 β ,17 β -dihydroxy-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-
3-yl propionate,

3,11 β -dihydroxy-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-
17 β -yl decanoate,

3,11 β -dihydroxy-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-17-
one,

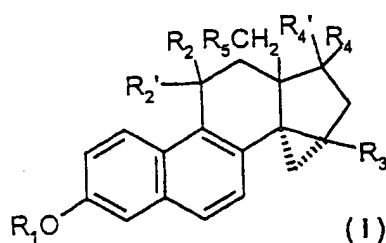
3-methoxy-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-11 α ,17 β -
diyl diacetate,

contol.
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15 β -methyl-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-3,11 β ,17 β -triol,
11 β -fluoro-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-3,17 β -diol,
3,17 β -dihydroxy-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-11-one,
3-methoxy-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-11 α ,17 α -diyl diacetate,
3-methoxy-14 α ,15 α -methylen-11-oxoestra-1, 3, 5(10),6,8-pentaene-17 α -yl acetate,
11 β -hydroxy-17,17-difluoromethylene-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-3-yl benzoate and
14 α ,15 α -methylene-17,17-bis-methyleneestra-1,3,5(10),6,8-pentaene-3,11 α -diol.

13. A method of making an equilenin derivative of formula I:

contd.
B7



wherein

R_1 denotes a hydrogen atom, a C_1 - C_5 -alkyl group, a C_1 - C_5 -acyl group or a benzoyl group,

R_2 denotes a hydrogen atom and R'_2 denotes a fluorine atom, a hydroxyl group or a C_1 - C_5 -acyloxy group or R_2 and R'_2 together denote an oxo group,

R_3 denotes a hydrogen atom or a methyl group,

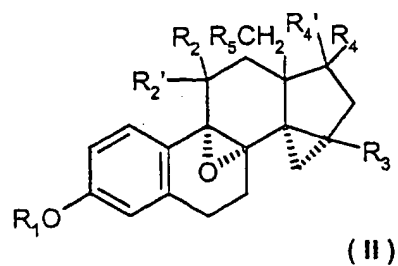
R_4 denotes a hydrogen atom and R'_4 denotes a hydroxyl group or a C_1 - C_{11} -acyloxy group or R_4 and R'_4 together denote an oxo group, a methylene group, a halomethylene group or a dihalomethylene group and

R_5 denotes a hydrogen atom or a methyl group;

said method comprising the steps of:

a) reacting diphosphorus tetraiodide in the presence of pyridine with a compound to formula II:

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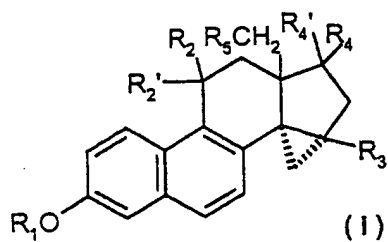
to form an intermediate product, and

b) converting the intermediate product to said equilenin derivative of said formula I.

14. A pharmaceutical composition comprising

at least one member selected from the group consisting of pharmaceutically compatible agents and carriers; and

at least one equilenin derivative of formula I:



contd
B⁷

wherein

R_1 denotes a hydrogen atom, a C_1 - C_5 -alkyl group, a C_1 - C_5 -acyl group or a benzoyl group,

R_2 denotes a hydrogen atom and R'_2 denotes a fluorine atom, a hydroxyl group or a C_1 - C_5 -acyloxy group or R_2 and R'_2 together denote an oxo group,

R_3 denotes a hydrogen atom or a methyl group,

R_4 denotes a hydrogen atom and R'_4 denotes a hydroxyl group or a C_1 - C_{11} -acyloxy group or R_4 and R'_4 together denote an oxo group, a methylene group, a halomethylene group or a dihalomethylene group and

R_5 denotes a hydrogen atom or a methyl group.

15. A pharmaceutical composition comprising

at least one member selected from the group consisting of pharmaceutically compatible agents and carriers; and

at least one equilenin derivative selected from the group consisting of:

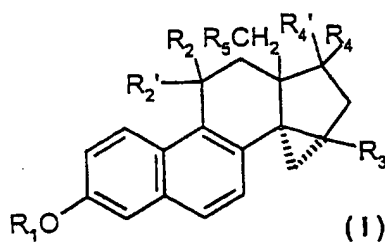
contd.
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14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-3, 11 β ,17 β -triol,
11 β ,17 β -dihydroxy-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-
3-yl benzoate,
11 β ,17 β -dihydroxy-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-
3-yl propionate,
3,11 β -dihydroxy-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-
17 β -yl decanoate,
3,11 β -dihydroxy-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-17-
one,
3-methoxy-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-11 α ,17 β -
diyl diacetate,
15 β -methyl-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-
3,11 β ,17 β -triol,
11 β -fluoro-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-3,17 β -
diol,
3,17 β -dihydroxy-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-11-
one,
3-methoxy-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-
11 α ,17 α -diyl diacetate,

contd.
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3-methoxy-14 α ,15 α -methylen-11-oxoestra-1, 3, 5(10),6,8-pentaene-17 α -yl acetate,
11 β -hydroxy-17,17-difluoromethylene-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-3-yl benzoate and
14 α ,15 α -methylene-17,17-bis-methyleneestra-1,3,5(10),6,8-pentaene-3,11 α -diol.

16. A method of geroprophylaxis in men and women, said method comprising administering to a person an effective amount for said geroprophylaxis of at least one equilenin derivative of formula I:



wherein

R₁ denotes a hydrogen atom, a C₁-C₅-alkyl group, a C₁-C₅-acyl group or a benzoyl group,

R₂ denotes a hydrogen atom and R'₂ denotes a fluorine atom, a

contd.
B⁷

hydroxyl group or a C₁-C₅-acyloxy group or R₂ and R'₂ together denote an oxo group,

R₃ denotes a hydrogen atom or a methyl group,

R₄ denotes a hydrogen atom and R'₄ denotes a hydroxyl group or a C₁-C₁₁-acyloxy group or R₄ and R'₄ together denote an oxo group, a methylene group, a halomethylene group or a dihalomethylene group and

R₅ denotes a hydrogen atom or a methyl group.

17. A method of geroprophylaxis in men and women, said method comprising administering to a person an effective amount for said geroprophylaxis of at least one equilenin derivative selected from the group consisting of:

14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-3, 11 β ,17 β -triol,

11 β ,17 β -dihydroxy-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-3-yl benzoate,

11 β ,17 β -dihydroxy-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-3-yl propionate,

3,11 β -dihydroxy-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-17 β -yl decanoate,

contd.
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3,11 β -dihydroxy-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-17-one,

3-methoxy-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-11 α ,17 β -diyl diacetate,

15 β -methyl-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-

3,11 β ,17 β -triol,

11 β -fluoro-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-3,17 β -diol,

3,17 β -dihydroxy-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-11-one,

3-methoxy-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-

11 α ,17 α -diyl diacetate,

3-methoxy-14 α ,15 α -methylen-11-oxoestra-1, 3, 5(10),6,8-pentaene-17 α -yl acetate,

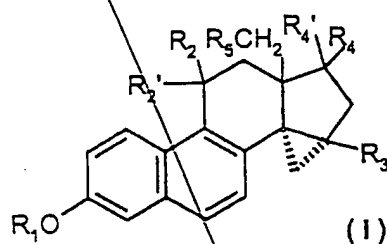
11 β -hydroxy-17,17-difluoromethylene-14 α ,15 α -methylenestra-1, 3,

5(10),6,8-pentaene-3-yl benzoate and

14 α ,15 α -methylene-17,17-bis-methyleneestra-1,3,5(10),6,8-pentaene-3,11 α -diol.

contd.
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18. A method of therapeutic treatment of men and women having diseases or organs or tissues caused, at least in part, by oxygen radicals, said method comprising administering to a person an effective amount for said therapeutic treatment of at least one equilenin derivative of formula I:



wherein

R₁ denotes a hydrogen atom, a C₁-C₅-alkyl group, a C₁-C₅-acyl group or a benzoyl group,

R₂ denotes a hydrogen atom and R'₂ denotes a fluorine atom, a hydroxyl group or a C₁-C₅-acyloxy group or R₂ and R'₂ together denote an oxo group,

R₃ denotes a hydrogen atom or a methyl group,

R₄ denotes a hydrogen atom and R'₄ denotes a hydroxyl group or a C₁-C₁₁-acyloxy group or R₄ and R'₄ together denote an oxo group, a

contd.
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Sub
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methylene group, a halomethylene group or a dihalomethylene group

and

R₅ denotes a hydrogen atom or a methyl group.

Sub
C2

19. A method of therapeutic treatment of men and women having diseases or organs or tissues caused , at least in part, by oxygen radicals, said method comprising administering to a person an effective amount for said therapeutic treatment of at least one equilenin derivative selected from the group consisting of:

14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-3, 11 β ,17 β -triol,

11 β ,17 β -dihydroxy-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-3-yl benzoate,

11 β ,17 β -dihydroxy-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-3-yl propionate,

3,11 β -dihydroxy-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-17 β -yl decanoate,

3,11 β -dihydroxy-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-17-one,

3-methoxy-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-11 α ,17 β -diyl diacetate,

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Sub
C2

15 β -methyl-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-

3,11 β ,17 β -triol,

11 β -fluoro-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-3,17 β -
diol,

3,17 β -dihydroxy-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-11-
one,

3-methoxy-14 α ,15 α -methylenestra-1, 3, 5(10),6,8-pentaene-

11 α ,17 α -diyl diacetate,

3-methoxy-14 α ,15 α -methylen-11-oxoestra-1, 3, 5(10),6,8-pentaene-

17 α -yl acetate,

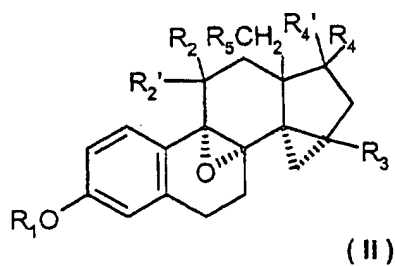
11 β -hydroxy-17,17-difluoromethylene-14 α ,15 α -methylenestra-1, 3,

5(10),6,8-pentaene-3-yl benzoate and

14 α ,15 α -methylene-17,17-bis-methyleneestra-1,3,5(10),6,8-

pentaene-3,11 α -diol.

20. A cyclopropano steroid of formula II:



wherein

R_1 denotes a hydrogen atom, a C_1 - C_5 -alkyl group, a C_1 - C_5 -acyl group or a benzoyl group,

R_2 denotes a hydrogen atom and R'_2 denotes a fluorine atom, a hydroxyl group or a C_1 - C_5 -acyloxy group or R_2 and R'_2 together denote an oxo group,

R_3 denotes a hydrogen atom or a methyl group,

R_4 denotes a hydrogen atom and R'_4 denotes a hydroxyl group or a C_1 - C_{11} -acyloxy group or R_4 and R'_4 together denote an oxo group, a methylene group, a halomethylene group or a dihalomethylene group and

R_5 denotes a hydrogen atom or a methyl group.

21. A cyclopropano steroid selected from the group consisting of